



Linking drivers of food insecurity and ecosystem services in Africa

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Introduction

Food insecurity levels are on the rise globally and existing measures to reduce them are having a negative impact on the environment and ecosystem services (ES). Although there are studies on how ES are linked to food security, details about the (in)direct links between ES and food security are dispersed throughout periodicals and academic publications. Our study addresses the **effects of agricultural intensification on ES** and the resultant trade-offs overlooked.

Methodology

Literature review selected from three databases; ScienceDirect, Google Scholar, and Web of Science. Inclusion criteria:

- study conducted in Africa or focus on the African context, mainly sub-Saharan.
- focus on food insecurity drivers, drivers of ecosystem changes, or both.
- publications between 2000 and 2023.

Twenty publications used provide an understanding of how drivers of food insecurity interact with one another, their influence on drivers of ecosystem changes, and ecosystem services in Africa.

Results

Food insecurity in Africa and its drivers

Over 50% of Africans experience moderate or severe food insecurity, with the key drivers being: high inflation affecting food prices, low crop productivity due to the reduced level of natural resources, climate change, rapid population increase and the increasing shift to biofuel production.

Ecosystem services and drivers of ecosystem changes in Africa

Ecosystem contributions (e.g., Regulating ES) are crucial in managing living surroundings and preserving human civilization, however, these are on the decline due to agriculture intensification.

We discuss four main drivers of ecosystem changes and their impact on one another (Figure 1).

Interactions between food insecurity drivers and ecosystem change drivers that affect ecosystem services

Drivers of food insecurity increase effects of drivers of ecosystem change, thereby affecting the ecosystem in general, and affecting its capacity to provide ES.

Key strategies to promote food security and ES in African countries

Four key strategies are highlighted: Climate-smart agricultural practices; Sustainable land use management; Effective water resource management; Ecosystem Services Payments.

Conclusion

Food insecurity drivers have caused significant harm to the ecosystem, due to measures adopted to mitigate existing food insecurity cases globally.

Policymakers must incorporate measures to promote sustainable agricultural practices using **Ecosystem Services Payment**, which exhibits promising contributions to transforming agriculture intensification sustainably in Africa and across the world.

Future research trends

Designing and testing techniques to suit various agroecological zones and socio-economic contexts.

Identifying and valuing ES provided by the adoption of specific sustainable farming practices.

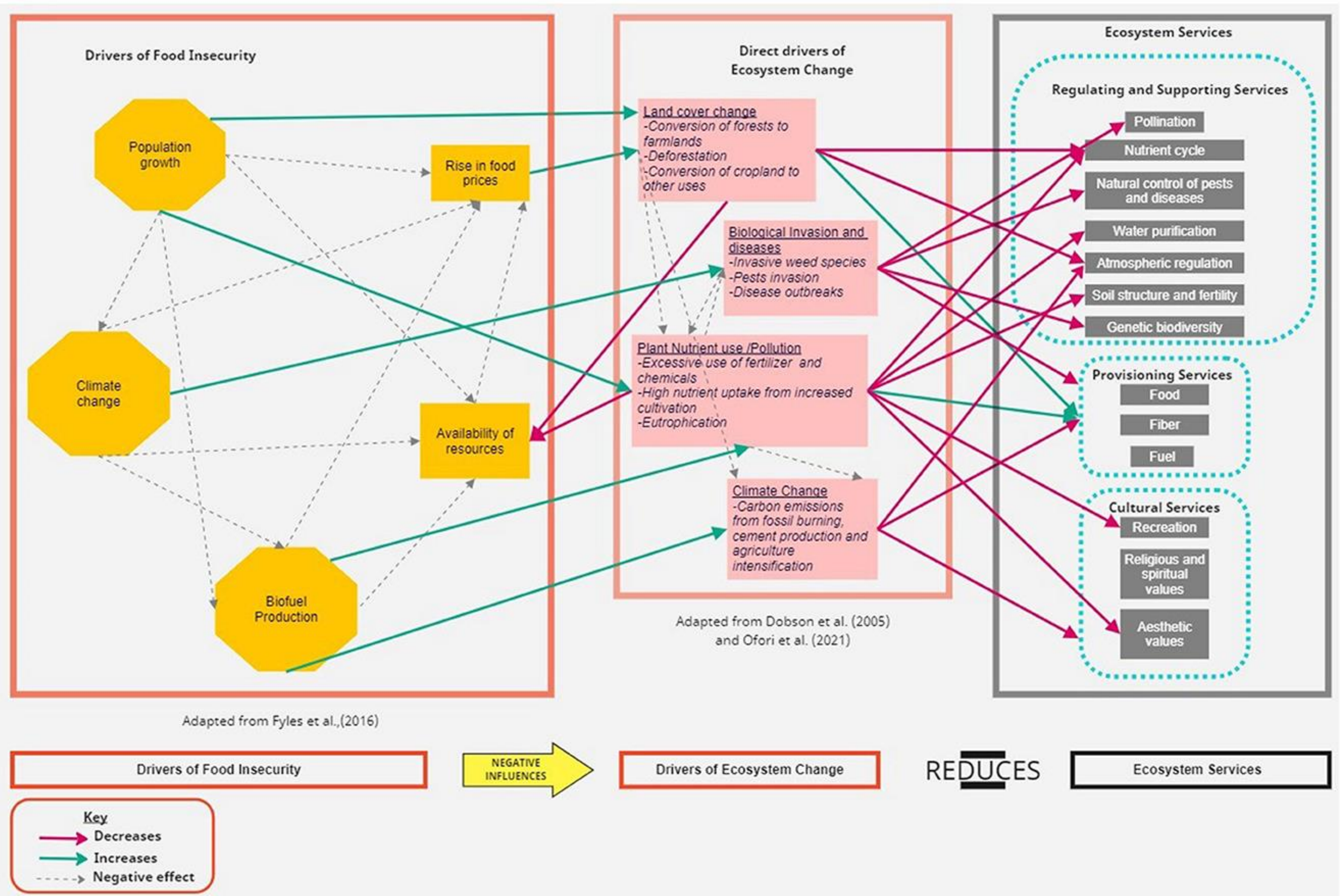


Figure 1. Linkages and interactions between drivers of food insecurity and ecosystem change drivers and how they affect ES.

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